# Nutrition for Early Chronic Kidney Disease in Adults

*National Kidney and Urologic Diseases Information Clearinghouse*

National Institute of Diabetes and Digestive and Kidney Diseases

## Why is nutrition important for someone with early chronic kidney disease (CKD)?

Controlling blood glucose, also called blood sugar, and blood pressure through healthy food choices is an important step toward slowing or stopping the progression of CKD. Diabetes and high blood pressure are the two leading causes of CKD in the United States. A person's eating habits can increase or decrease diabetes and blood pressure risks.

## What do the kidneys do?

The kidneys remove wastes and extra fluid from the blood and make urine. To keep the body working properly, the kidneys balance the salts and minerals—such as calcium, phosphorus, sodium, and potassium—that circulate in the blood. The kidneys also release hormones that help make red blood cells, regulate blood pressure, and keep bones strong.

## What are the effects of CKD?

CKD usually takes a long time to develop and does not go away. In CKD, the kidneys continue to work—just not as well as they should. Wastes may build up so gradually that the body becomes used to having those wastes in the blood. Salts containing phosphorus and potassium may rise to unsafe levels, causing heart and bone problems. Anemia—low red blood cell count—can result from CKD because the kidneys stop making enough erythropoietin, a hormone that causes bone marrow to make red blood cells. After months or years, CKD may progress to permanent kidney failure, which requires a person to have a kidney transplant or regular blood filtering treatments called dialysis.

## Who is at risk for CKD?

Millions of Americans are at risk for developing CKD because they have diabetes, high blood pressure, or both. High blood glucose levels put people with diabetes at risk for heart disease, stroke, amputation, and eye and kidney problems. People with high blood pressure are at risk for damaged blood vessels, including tiny vessels in the kidneys.

## What does a person with CKD and diabetes need to know about food and controlling blood glucose?

People with either type 1 or type 2 diabetes must choose foods carefully to control their blood glucose, the body's main source of energy. Following a meal plan to keep blood glucose at a healthy level may prevent CKD from developing.

People with diabetes should talk with their health care provider about setting goals for maintaining healthy blood glucose levels and about how often to check their blood glucose level. The results from these blood glucose checks indicate whether a person's meal plan is helping to keep diabetes under control. People with diabetes should also ask their doctor for an A1C test at least twice a year. The A1C number reflects a person's average blood glucose level over the past 2 to 3 months.

Following regular, daily habits can help maintain healthy blood glucose levels:

- Eating about the same amount of food each day.
- Eating meals and snacks at about the same times each day.
- Not skipping meals or snacks.
- Taking medicines at the same times each day.
- Participating in physical activity every day.

## What does a person with CKD and high blood pressure need to know about food and controlling blood pressure?

As blood pressure rises, the risk of damage to the arteries, heart, brain, and kidneys increases. Controlling blood pressure through healthy food choices and regular physical activity can delay or prevent the development of CKD.

Blood pressure is expressed as two numbers. The top number represents the force of the blood pushing against the artery walls when the heart beats. The lower number represents the pressure between beats. Normal blood pressure is below 120/80 millimeters of mercury (mmHg). People with CKD should try to keep their blood pressure below 140/90 mmHg.

Following a meal plan can help control blood pressure and protect the kidneys. The National Heart, Lung, and Blood Institute supported research that compared a typical American diet with the Dietary Approaches to Stop Hypertension (DASH) eating plan, which is lower in saturated fat, cholesterol, and total fat and emphasizes eating fruits, vegetables, and low-fat dairy foods. People who followed the DASH eating plan were able to reduce their blood pressure much more than those who ate a typical diet. The DASH eating plan also includes whole grain products, fish, poultry, and nuts. Limiting sodium, or salt, is another important feature of the plan. A dietitian can help find low-salt or salt-free alternatives to foods that are high in salt.

## What is medical nutrition therapy (MNT)?

MNT is the use of nutrition counseling by a registered dietitian to help promote a medical or health goal. A doctor may refer a patient to a registered dietitian to help with the patient's food plan. Many insurance policies cover MNT when recommended by a doctor. Anyone who qualifies for Medicare can receive a benefit for MNT from a registered dietitian or nutrition professional when a doctor provides a referral indicating the person has diabetes or kidney disease.

One way to locate a qualified dietitian is to contact the American Dietetic Association at *www.eatright.org* and click on "Find a Registered Dietitian." Users can enter their address or ZIP code for a list of dietitians in their area. A person looking for dietary advice to prevent kidney damage should click on "Renal (Kidney) Nutrition" in the specialty field. Dietitians who specialize in helping people with CKD are called renal dietitians.

## How can understanding and keeping track of lab reports help someone with early CKD make healthy food choices?

Learning how to read and understand lab reports lets a person see how different foods can affect the kidneys. A doctor should order regular blood tests for people with CKD. Patients can ask their doctor for copies of their lab reports and ask to have them explained, noting any results out of the normal range. Keeping track of these lab results can help people see whether they are making progress or getting worse. People with CKD should talk with their doctor or dietitian about how they can make healthier food choices. For example, a person who has a high A1C score should follow a diabetes meal plan to lower blood glucose levels.

## Points to Remember

- Controlling blood glucose and blood pressure through healthy food choices is an important step toward slowing or stopping the progression of chronic kidney disease (CKD).
- The kidneys remove wastes and extra fluid from the blood and make urine.
- Millions of Americans are at risk for developing CKD because they have diabetes, high blood pressure, or both.
- People with either type 1 or type 2 diabetes must choose foods carefully to control their blood glucose. Following a meal plan to keep blood glucose at a healthy level may prevent CKD from developing.
- Controlling blood pressure through healthy food choices and regular physical activity can delay or prevent the development of CKD. People with CKD should try to keep their blood pressure below 140/90 mmHg.
- Medical nutrition therapy (MNT) is the use of counseling by a registered dietitian to help promote a medical or health goal.
- Dietitians who specialize in helping people with CKD are called renal dietitians.
- Learning how to read and understand lab reports lets a person see how different foods can affect the kidneys. Patients can ask their doctor for copies of their lab reports and ask to have them explained, noting any results out of the normal range.

## Hope through Research

The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) has many research programs aimed at slowing the progression of CKD. For example, the NIDDK is sponsoring the Chronic Renal Insufficiency Cohort study to determine the risk factors for rapid decline in kidney function and development of cardiovascular disease. This study of about 3,000 patients with chronic renal insufficiency, another way of describing CKD, will reflect the racial, ethnic, and gender composition of the people in the United States who have permanent kidney failure. The data collected and specimens obtained will serve as a national resource for investigating CKD, as well as cardiovascular disease. Establishing this group of patients and following them into the future also provides an opportunity to examine genetic, environmental, behavioral, nutritional, quality-of-life, and health resource use factors in this population. The main part of the study will consist of monitoring participants and following up at regular clinic visits with kidney function measurements, cardiovascular studies, and lab tests. In addition, participants will answer questionnaires to assess various demographic, nutritional, and quality-of-life factors.

Clinical trials are research studies involving people. Clinical trials look at safe and effective new ways to prevent, detect, or treat disease. Researchers also use clinical trials to look at other aspects of care, such as improving the quality of life for people with chronic illnesses. To learn more about clinical trials, why they matter, and how to participate, visit the NIH Clinical Research Trials and You website at *www.nih.gov/health/clinicaltrials.* For information about current studies, visit *www.ClinicalTrials.gov.*

## Additional Reading

The following fact sheets and brochures, as well as other information, are available on request from the organizations listed. Most of these resources can also be found online at the web addresses given.

***Dining Out With Confidence: A Guide for Patients With Kidney Disease***
***Nutrition and Chronic Kidney Disease***
**National Kidney Foundation**
30 East 33rd Street
New York, NY 10016–5537
Phone: 1–800–622–9010 or 212–889–2210
Fax: 212–689–9261
Internet: www.kidney.org

***Facts About the DASH Eating Plan***
**National Heart, Lung, and Blood Institute Health Information Center**
Attn: Website
P.O. Box 30105
Bethesda, MD 20824–0105
Phone: 301–592–8573
TTY: 7–1–1
Fax: 301–592–8563
Email: nhlbiinfo@nhlbi.nih.gov
Internet: www.nhlbi.nih.gov

***A Healthy Food Guide for People with Chronic Kidney Disease***
**Academy of Nutrition and Dietetics**
120 South Riverside Plaza, Suite 2000
Chicago, IL 60606–6995
Internet: www.eatright.org

***Kidney Beginnings: A Patient's Guide to Living with Reduced Kidney Function***
**American Association of Kidney Patients**
2701 North Rocky Point Drive, Suite 150
Tampa, FL 33607
Phone: 1–800–749–2257 or 813–636–8100
Fax: 813–636–8122
Email: info@aakp.org
Internet: www.aakp.org

***What I need to know about Eating and Diabetes***
**National Diabetes Information Clearinghouse**
1 Information Way
Bethesda, MD 20892–3560
Phone: 1–800–860–8747
Email: ndic@info.niddk.nih.gov
Internet: www.diabetes.niddk.nih.gov

***Eating Right for Kidney Health: Tips for People with Chronic Kidney Disease (CKD)*** **(online only)**
***Your Kidney Test Results*** **(online only)**
**National Kidney Disease Education Program**
3 Kidney Information Way
Bethesda, MD 20892
Phone: 1–866–4–KIDNEY (1–866–454–3639)
TTY: 1–866–569–1162
Fax: 301–402–8182
Email: nkdep@info.niddk.nih.gov
Internet: www.nkdep.nih.gov

## For More Information

**American Kidney Fund (AKF)**
11921 Rockville Pike, Suite 300
Rockville, MD 20852
Phone: 1–800–638–8299
Internet: www.kidneyfund.org

**Food and Nutrition Information Center**
National Agricultural Library
10301 Baltimore Avenue, Room 108
Beltsville, MD 20705
Phone: 301–504–5414
Fax: 301–504–6409
Email: fnic@ars.usda.gov
Internet: www.nal.usda.gov/fnic

**Medical Education Institute, Inc. (MEI)**
414 D'Onofrio Drive, Suite 200
Madison, WI 53719
Phone: 1–800–468–7777 or 608–833–8033
Fax: 608–833–8366
Internet: www.meiresearch.org
www.lifeoptions.org
www.kidneyschool.org
www.homedialysis.org

The information in this fact sheet should not be used in the nutritional counseling of infants, children, and adolescents with CKD. Families of pediatric patients with CKD should seek age-appropriate nutritional counseling from a pediatric renal dietitian.

## About the Nutrition for Chronic Kidney Disease Series

The NIDDK Nutrition for Chronic Kidney Disease Series includes three fact sheets:

- *Nutrition for Early Chronic Kidney Disease in Adults*
- *Nutrition for Advanced Chronic Kidney Disease in Adults*
- *Nutrition for Chronic Kidney Disease in Children*

For free, single, printed copies of this series, please contact the National Kidney and Urologic Diseases Information Clearinghouse.

You may also find additional information about this topic by visiting MedlinePlus at *www.medlineplus.gov.*

This publication may contain information about medications and, when taken as prescribed, the conditions they treat. When prepared, this publication included the most current information available. For updates or for questions about any medications, contact the U.S. Food and Drug Administration toll-free at 1–888–INFO–FDA (1–888–463–6332) or visit *www.fda.gov*. Consult your health care provider for more information.

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## National Kidney Disease Education Program

3 Kidney Information Way
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Email: nkdep@info.niddk.nih.gov
Internet: www.nkdep.nih.gov

The National Kidney Disease Education Program (NKDEP) is an initiative of the National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health, U.S. Department of Health and Human Services. The NKDEP aims to raise awareness of the seriousness of kidney disease, the importance of testing those at high risk, and the availability of treatment to prevent or slow kidney disease.

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Internet: www.kidney.niddk.nih.gov

The National Kidney and Urologic Diseases Information Clearinghouse (NKUDIC) is a service of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). The NIDDK is part of the National Institutes of Health of the U.S. Department of Health and Human Services. Established in 1987, the Clearinghouse provides information about diseases of the kidneys and urologic system to people with kidney and urologic disorders and to their families, health care professionals, and the public. The NKUDIC answers inquiries, develops and distributes publications, and works closely with professional and patient organizations and Government agencies to coordinate resources about kidney and urologic diseases.



This publication is available at *www.kidney.niddk.nih.gov.*

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